# REMARKS

Please note that an RCE is being filed contemporaneously with the response. Reconsideration of the above-identified application in view of the amendments above and the newly submitted arguments following is respectfully requested.

Claims 1-9, 13-31, 35-40, and 44 are pending in this case. Claims 1-9, 11, 13-15, 33, 43 and 44 were withdrawn by the Examiner from consideration as drawn to a non-elected invention. Claims 16-31 and 35-40 have been rejected under § 102(b) or § 103(a). Claims 33 and 43-44 have been objected to. All claims have been canceled, without prejudice. New claims 45-67 have been added.

## § 102(b) Rejections

The Examiner has rejected claims 16-31 and 35-40 under § 102(b) as being anticipated by U.S. Patent No. 3,941,724 to Bolto et al. (henceforth, "Bolto"). The Examiner's rejections are respectfully traversed.

The Examiner maintains that Bolto teaches the use of acetic acid as a major component in lieu of formic acid. However, Bolto's major improvement to the existing manufacturing method is "carrying out the process in the presence of a solvent system comprising formic acid" (column 2, lines 26-28).

Bolto actually teaches away from the use of acetic acid, and goes on to unequivocally state that:

> Formic acid appears unique in its ability to prevent self neutralisation reactions occuring during the preparation of amphoteric resins. We have found that other carboxylic acids

> such as acetic acid or propionic acid are not satisfactory solvents for the polymerisation of a mixture of acidic and basic monomers as the resultant product has neglible thermally regenerable ion-exchange activity. (column 2, lines 34-41)

Moreover, Bolto documents the inefficacy of acetic acid in Example 2, in which the effective capacity of a resin prepared with acetic acid (as a solvent) is shown to be negligible.

Further arguments will be presented below, with regard to the 103 rejections.

## § 103 Rejections

The Examiner has rejected claims 16-31 under § 103(a) as being unpatentable over U.S. Patent No. 4,120,831 to Kuznetsova et al. (henceforth, "Kuznetsova") in view of U.S. Patent No. 5,336,742 to Heilman et al. The Examiner has rejected claims 35-40 under § 103(a) as being unpatentable over Kuznetsova. The Examiner's rejections are respectfully traversed.

Applicant's previously amended claim 16 reads as follows:

16. A method for forming particulate matter of carboxylic cationites, the method comprising the steps of:

(a) dissolving a monovinyl monomer and a cross-linking agent as co-monomers in a solvent to form a mixture;

(b) adding an initiator of radical polymerization to said first mixture to form a pre-polymer;

(c) dispersing said pre-polymer in a solution of alcohol to form a dispersion mixture; and

(d) mixing said dispersion mixture with an aqueous solution of an inorganic salt to form the particulate matter of carboxylic cationites.

Upon examination of independent claim 16, it would appear that as articulated by the Examiner, Kuznetsova teaches steps (a) and (b), as well as a dispersing step similar to step (c). However, the dispersion liquid of Kuznetsova is a silicone liquid, either polyethylsiloxane or polymethylphenylsiloxane, both of which are oil-like substances.

By contrast, the method of the present invention uses a solution of alcohol as the dispersion liquid. The Examiner maintains that alcohols are commonly used as components of dispersing media in dispersion polymerization, and consequently, it would have been obvious to one skilled in the art to use an alcohol as part of the dispersing media in the process of Kuznetsova.

However, Kuznetsova teaches and claims – specifically and solely -- the use of silicone liquids (polyethylsiloxane or polymethylphenylsiloxane) as the dispersion liquid. These silicone liquids are utilized in all 21 Examples provided by Kuznetsova. Since Kuznetsova reports various advantageous topological properties to the carboxyl cationites produced by the disclosed process, it is manifest that the use of these specific dispersion liquids is a fundamental part of the Kuznetsova process.

Thus, it would be surprising to discover a dispersing liquid that achieves a higher-performance resin than that of Kuznetsova, as disclosed at length in the instant invention. The use of the silicone liquids has many additional disadvantages (see page 2 of the instant Specification). Also, more than 20 years have elapsed since Kuznetsova issued, and until the instant Specification, no one has brought into industrial practice, nor taught, nor fairly suggested the utilization of an alcohol as a dispersion liquid for use in the process of Kuznetsova.

Moreover, a careful reading of claim 16 shows that there are two dispersion steps:

(c) dispersing said pre-polymer in a solution of alcohol to form a dispersion mixture; and

(d) mixing said dispersion mixture with an aqueous solution of an inorganic salt to form the particulate matter of carboxylic cationites.

Kuznetsova does not teach, nor fairly suggest, either of the two dispersion steps, let alone two consecutive dispersion steps using different dispersion liquids. Moreover, there is nothing within the extremely broad teachings of U.S. Patent No. 5,336,742 to Heilman et al. to suggest such a dispersion method.

Support for the two consecutive dispersion steps can be found in the specification. Specifically, page 6, lines 6-13 reads as follows:

> ... preferably the pre-polymer is placed first into a solution of alcohol as the dispersion medium to form a dispersed mixture. More preferably, the ratio of pre-polymer to alcohol is in a range of from about 2.5: 1 to about 5:1 to form irregular particles, and is 1:1 to form spherical granules. Next, the dispersed mixture is preferably placed in an aqueous solution of an inorganic salt, more preferably an aqueous solution of sodium sulfate, and most preferably a 20 percent weight per weight aqueous solution of sodium sulfate. The ratio of dispersion mixture to aqueous dispersion solution is preferably in a range of from about 1:4 to about 1:5.

While continuing to traverse the Examiner's rejections, the Applicant has, in order to expedite the prosecution, chosen to add additional limitations to the new claims, in order to clarify and emphasize the crucial distinctions between the method of the present invention and the method of the patents cited by the Examiner.

New independent claim 45 reads as follows:

45. (New) A method for forming particulate matter of carboxylic cationites, the method comprising the steps of:

(a) dissolving a monovinyl monomer and a cross-linking agent as co-monomers in a solvent containing acetic acid, to form a mixture;

(b) adding an initiator of radical polymerization to said first mixture to form a pre-polymer;

(c) dispersing said pre-polymer in a solution of alcohol, in a first dispersing stage, to form a first dispersion mixture; and

(d) mixing said first dispersion mixture with an aqueous solution of an inorganic salt, in a second dispersing stage, to form a second dispersion mixture, so as to complete polymerization of the particulate matter of carboxylic cationites.

It must be emphasized that the conversion of the polymer to the hydrogen-sodium form, as taught by Kuznetsova, and as cited by the Examiner, is not a synthesis step for producing carboxylic cationites, as disclosed and claimed, nor can the step taught by Kuznetsova be considered to be a dispersion step. The conversion of the polymer to the hydrogen-sodium form, as disclosed by Kuznetsova, is merely a test of the efficacy of a finished, ready-to-use polymer. Certainly, Kuznetsova does not mix an aqueous solution of an inorganic salt with **a dispersion mixture** of any kind (e.g., silicone liquids). Even more certainly, Kuznetsova does not mix an aqueous solution of an inorganic salt with the first dispersion mixture recited in claim 45.

Dependent claims (46-66) are supported by the original set of claims. Dependent claim 67 draws support, inter alia, from Example 8 on the instant Specification.

The new claims presented hereinabove now feature language that makes the method of the present invention patentably distinct from all the various combinations of the prior art. The Applicant believes that the amendment of the claims completely overcomes the Examiner's rejections on § 102(b) and § 103 grounds.

In view of the above amendments and remarks it is respectfully submitted that new claims 45-67 are in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

Mark M. Friedman
Attorney for Applicant
Registration No. 33,883

Date: October 2, 2005